Colorado Extended Evidence Outcomes: Mathematics

Grade 7

Ratios & Proportional Relationships: Analyze proportional relationships and use them to solve real-world and mathematical problems. 7.RP.A

1. **Compute unit rates associated with ratios of whole numbers, including ratios of lengths, areas, and other quantities measured in like or different units.** 7.RP.A.1
   - a. For example, if a person walks 6 miles in 2 hours, compute the unit rate as the fraction 6 , equivalently 3 miles per hour. 7.RP.A.1.A
2. **Represent proportional relationships between quantities using a table.** 7.RP.A.2
3. **Use proportional relationships to solve simple ratio and percent problems.** 7.RP.A.3
   - a. Examples: simple interest, tax, markups and markdowns, and gratuities. 7.RP.A.3.A

The Number System: Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers. 7.NS.A

1. **Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers with single-digit numerators and denominators up to at least 12.** 7.NS.A.1
   - a. Represent addition and subtraction on a horizontal or vertical number line diagram. For example, add - 1 + 3 to get 1 . 7.NS.A.1.A
2. **Apply and extend previous understandings of multiplication and division and or fractions to multiply and divide rational numbers with single-digit numerators and denominators up to at least 12, e.g., by using visual fraction models or equations to represent the problem.** 7.NS.A.2
   - a. For example, dividing 3 of a pizza into pieces the size of 1 of the whole 4 4 pizza can be written as 3 divided by 1 , and it yields 3 pieces. 7.NS.A.2.A
3. **Solve real-world and mathematical problems involving the four operations.** 7.NS.A.3

Expressions & Equations: Use properties of operations to generate equivalent expressions. 7.EE.A

1. **Apply properties of operations as strategies to add and subtract linear expressions with whole number coefficients. For example, 2x + 3x is 5x.** 7.EE.A.1
2. **Demonstrate that rewriting an expression in different forms can shed light on the problem and how the quantities in it are related.** 7.EE.A.2
   - a. For example, if 3 people at lunch spend $21 for sandwiches, the expression $7 x 3 tells us that it was 7 dollars for each of the 3 sandwiches. 7.EE.A.2.A

Expressions & Equations: Solve real-life and mathematical problems using numerical and algebraic expressions and equations. 7.EE.B

3 **Solve multi-step real-life and mathematical problems posed with whole numbers, benchmark fractions, and/or decimals to two decimal places. Numbers should combine cleanly for simpler calculations.** 7.EE.B.3

a For example, if a sandwich costs $6.50 and a drink costs $1.50, but you have a coupon to save 1 off the total, how much will you spend for the 4 sandwich and the drink? 7.EE.B.3.A

4 **Solve real-world or mathematical problems using simple equations containing variables.** 7.EE.B.4

b For example, if x number of glasses of water plus 2 glasses of water makes 8 glasses of water total, then x must be 6 glasses of water. 7.EE.B.4.B

c Represent the problems using objects or drawings and match the situations to equations (in this case, x + 2 = 8). 7.EE.B.4.C

Statistics & Probability: Use random sampling to draw inferences about a population. 7.SP.A

1 **Understand that statistics usually involves measuring something about a sample to learn something about a problem.** 7.SP.A.1

2 **Use data from a sample to answer a statistical question.** 7.SP.A.2

a For example, conclude from a sample of the class that most students like chocolate ice cream. 7.SP.A.2.A

Statistics & Probability: Draw informal comparative inferences about two populations. 7.SP.B

3 **Informally compare two sets of data within a single data display, such as a picture graph, line plot, or bar graph.** 7.SP.B.3

4 **Use given measures of center and given measures of variability for numerical data from random samples to draw informal comparative inferences about two populations.** 7.SP.B.4

a For example, if the average height of a class of 8th graders is 5 feet 5 inches, and the average height of a class of 7th graders is 5 feet 2 inches, which population is more likely taller on average, 8th graders of 7th graders? 7.SP.B.4.A

Statistics & Probability: Investigate chance processes and develop, use, and evaluate probability models. 7.SP.C

5 **Indicate an understanding that the probability of a chance event can be 0, for things that never happen, between 0 and 1, for things that sometimes happen, or 1, for things that always happen.** 7.SP.C.5

6 **Collect data on a chance process (e.g., flipping a coin, rolling a die) and observe its long-run relative frequency.** 7.SP.C.6

7 **Compare probabilities from a model to observed frequencies and identify when agreement is not good.** 7.SP.C.7

a For example, given that the probability of flipping heads is 0.5, getting 8 heads out of 10 flips is not good agreement with the model. 7.SP.C.7.A

8 **Find probabilities of compound events using organized lists and tree diagrams.** 7.SP.C.8

Geometry: Draw, construct, and describe geometrical figures and describe the relationships between them. 7.G.A	1	**Match corresponding parts of scale drawings of geometric figures and compare given lengths and areas.** 7.G.A.1
	2	**Create triangles with given conditions and recognize that some combinations of side lengths and/or angles cannot be made into a triangle.** 7.G.A.2
	3	**Describe rectangular cross-sections from right rectangular prisms.** 7.G.A.3
Geometry: Solve real-life and mathematical problems involving angle measure, area, surface area, and volume. 7.G.B	4	**Use the formula for the area and circumference of a circle to solve problems.** 7.G.B.4
	5	**Recognize angles that are acute, obtuse, and right (EE.7.G.B.5).** 7.G.B.5
	6	**Solve real-world and mathematical problems involving the area of triangles, rectangles, and circles, and the volume and surface area of right rectangular prisms.** 7.G.B.6